

REMARKS/ARGUMENTS

This Amendment is in response to the Final Office Action dated October 3, 2005. Claims 1, 5, 7-26 remain pending in the present application. Claims 1, 5, 7, and 15-23 are rejected. Claims 1 and 5 have been changed, claims 8-14 have been cancelled, and claims 22-26 have been added by this amendment. A request for continued examination (RCE) accompanies this amendment.

Applicant has amended the specification to include a reference to the parent application that was indicated in the original transmittal to the present application. The claim amendments are supported by Applicant's specification at, for example, page 5, lines 11-23, page 6, lines 4-5, and page 7, lines 1-2. Therefore, no new matter has been introduced.

102 Rejections

The Examiner rejected claims 1, 5, 7, 15, and 16 under 35 U.S.C. 102(a) as being anticipated by Tsuchiko et al. (U.S. Patent No. 2003/0038316) ("Tsuchiko"). Applicant has amended claims 1 and 5 to point out the patentability of these claims.

Applicant's claim 1 recites a LDMOS device, including a gate region, a body region , and an enhanced drift region under the gate region, where the enhanced drift region purposely overlaps the body region, and where the enhanced drift region and the body region are both self-aligned to the gate region and self-aligned to each other.

Tsuchiko does not disclose or suggest Applicant's invention of claim 1. Tsuchiko discloses a transistor in which a body region, such as p-type well 114 of Fig. 4, and an n-well 105, are formed in the substrate before a gate 108 and field oxide 118 are deposited, and are therefore not self-

aligned to the gate. The field oxide 118 and gate 108 are deposited after the body p-type well 114 and the n-type well 105 are implanted, as is well known to those of skill in the art when creating a transistor having a field oxide region as shown in Tsuchiko's embodiments. In contrast, Applicant's invention of claim 1 recites a body region and drift region that are both self-aligned to the gate region and therefore to each other. Tsuchiko provides no body and drift regions self-aligned to the gate nor to each other. Applicant therefore believes that claim 1 is patentable over Tsuchiko. Claims 15-18 are dependent from claim 1 and believed patentable over Tsuchiko for at least the same reasons as claim 1. New claims 22-24 are dependent on claim 1 and recite subject matter formerly in claim 1, and is patentable for at least the same reasons as claim 1.

Claim 5 recites a body region and an enhanced drift region, where the drift region and the body region are both self-aligned to the gate region and therefore self-aligned to each other. Claim 5 is therefore believed patentable over Tsuchiko for reasons similar to claim 1 as explained above. Claims 7 and 19-21 are dependent from claim 5 and patentable over Tsuchiko for at least the same reasons. New claims 25-26 are dependent on claim 5 and recite subject matter formerly in claim 5, and are patentable for at least the same reasons as claim 5.

The Examiner rejected claims 1, 5, 7, 15, 16, and 19 under 35 U.S.C. 102(a) as being anticipated by Mori (WO 03/021685) ("Mori"). Applicant has amended claims 1 and 5 to point out the patentability of these claims.

Mori discloses a semiconductor device in which a p-well body region 26 and a drain region 27 are formed on a substrate (Fig. 5A), and then a gate electrode material 301 is deposited (Fig. 5B), from which a gate 30 is formed (Fig. 5C). In contrast, Applicant's invention of claim 1 recites a body region, and an enhanced drift region, where the body and drift regions are both self-

aligned to the gate region and therefore to each other. Mori's gate region was formed after the body and drain regions, and Mori thus cannot have self-aligned body and drift regions as recited by Applicant. Applicant therefore believes that claim 1 is patentable over Mori. Claims 15-18 and 22-24 are dependent from claim 1 and believed patentable over Mori for at least the same reasons as claim 1. Claim 5 and dependent claims 7, 19-21, and 25-26 are believed patentable over Mori for at least similar reasons.

103 Rejections

The Examiner rejected claims 1, 5, 7, and 15-21 under 35 U.S.C. 103(a) as being unpatentable over Hsing et al. (U.S. Patent No. 5,517,046) ("Hsing") in view of Mori (WO 03/021685) ("Mori"). Hsing discloses a DMOS transistor structure including body, enhanced drift region, and gate, but does not disclose the overlap of body region and drift region. The Examiner states that it would have been obvious to one of ordinary skill in the art to form the enhanced drift region so that the drift region overlaps the lateral tail of the body region as taught by Mori into Hsing's device in order to obtain an offset drain type MOS transistor having a stable threshold voltage and a low ON resistance.

Applicant respectfully disagrees. The device of Mori is not similar to the device of Hsing. Mori's process is for forming CMOS transistor devices, not the DMOS device of Hsing. Mori's device is fabricated completely differently than Hsing's device, where Mori's device has a gate formed over existing implanted body and drift regions, while Hsing's device has a gate, and a body and drift region formed, self-aligned to the existing gate (col. 3, lines 7-29 of Hsing). There is no motivation for one of skill in the art to consult Mori's device and include any part of it in the completely different self-aligned device of Hsing. One of ordinary skill who was

creating Hsing's device would not examine Mori's device (or vice versa), since Mori's device is not relevant to Hsing's device. Therefore, it would not have been obvious to combine a feature of Mori's device into Hsing's device to achieve the self-aligned overlapped regions of Applicant's claim 1. Furthermore, neither reference discloses or suggests self-aligned overlapping body and drift region as claimed by Applicant. Applicant's claim 1 is therefore believed patentable over Hsing in view of Mori. Claims 15-18 and 22-24 are dependent from claim 1 and believed patentable over Hsing in view of Mori for at least the same reasons as claim 1. Claim 5 and dependent claims 7, 19-21, and 25-26 are believed patentable over Hsing in view of Mori for at least similar reasons.

In view of the foregoing, Applicant submits that claims 1, 5, 7 and 15-26 are patentable, and respectfully requests reconsideration and allowance of the claims as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

January 3, 2006

Date

Respectfully submitted,
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